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Edward J. Seppi

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EXAMINER

YUN, JURIE

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/687,573	Applicant(s) SEPPI ET AL.	
	Examiner JURIE YUN	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-13,21-25,27-34,39-60 and 62-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-13,21-25,27-34,39-60 and 62-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 10/31/08 has been entered.

Claim Objections

2. Claim 64 is objected to because of the following informalities: in line 1, "that" should be deleted to read better. Also, the "t" in "the" (first occurrence) should be capitalized. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 6-13, 39-56, 59, 64, 66, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besson (USPN 6,950,493 B2) in view of Keitaro et al. (JP 05-036368).

5. With respect to claims 1, 39, and 56, Besson discloses an apparatus for use in a radiation procedure, comprising: a radiation filter (Fig. 2 - 150) having a first portion (152) and a second portion (154), the first and the second portions forming a layer for filtering radiation impinging thereon; wherein the first portion is made from a first X-ray filtering material, and the second portion is made from a second X-ray filtering material (column 9, lines 45-60 & column 11, lines 21-28); a structure (112) having a cavity, the radiation filter (150) in operative association with the structure (via control unit - 110); and a disk located within the cavity, the disk having a first target material and a second

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target material (column 21, lines 52-57). The first and the second filter factor is applied automatically using a machine (control unit - 110 controls motor - 156).

Besson does not specifically disclose the first target material corresponds with the first x-ray filtering material of the radiation filter, and the second target material corresponds with the second x-ray filtering material of the radiation filter, the second x-ray filtering material being different from the first x-ray filtering material, wherein the disk having the first target material and the second target material is rotatable. Keitaro et al. teach a first target material (1) corresponds with a first radiation filter, and a second target material (2) corresponds with a second radiation filter, wherein the disk (3) having the first target material and the second target material is rotatable (abstract & paragraphs 0001-0009). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Besson to employ a first target material corresponding with the first portion of the radiation filter, and a second target material corresponding with the second portion of the radiation filter, to enable generation of a desired quality of radiation, as taught by Keitaro et al. It is also obvious that the filters of Keitaro et al. are different, because these correspond to each cathode and the material of the focus surfaces (abstract), and Keitaro et al. are concerned with being able to produce different x-ray quality within the same device. The different x-ray quality are produced by the different filters and material of the focus surfaces used.

It is noted that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. See MPEP 2114. In this case, it should

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be recognized that the wherein clause (wherein the disk...is rotatable) is functional in nature and does not distinguish structurally the instant claim over the prior art. See MPEP 2114 and 2111.04.

6. With respect to claim 2, Besson discloses the first and the second target materials (Fig. 28A, 2702 & 2704) are parts of a radiation source (Fig. 28B, 2802), and the apparatus further comprises the radiation source.

7. With respect to claim 3, Besson discloses a gantry to which the radiation source is secured (column 3, lines 53-54).

8. With respect to claim 6, Besson discloses the radiation source comprises an anode that includes a rare earth element, a platinum group metal, or combination thereof (column 21, lines 52-57).

9. With respect to claim 7, Besson discloses the radiation source comprises a voltage generator (column 13, lines 59-60).

10. With respect to claim 8, Besson discloses a switching element coupled to the voltage generator, the switching element configured to modulate the voltage generated by the voltage generator (column 35, lines 66+).

11. With respect to claim 9, Besson discloses an imager (114) for generating image data in response to radiation that has been filtered by the layer.

12. With respect to claim 10, Besson discloses the imager has a first image element for generating a first image data in response to radiation that has been filtered by the first portion of the radiation filter, and a second image element for generating a second

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image data in response to radiation that has been filtered by the second portion of the radiation filter (column 4, lines 39-64).

13. With respect to claim 11, Besson discloses a gantry, wherein the imager and the radiation filter are secured to the gantry (column 3, lines 53-54).

14. With respect to claim 12, Besson discloses the imager (114) is coupled to a support structure (128) for supporting an object (116) to which filtered radiation (132) is directed.

15. With respect to claims 13 and 42, Besson discloses either or both of the first and second X-ray filtering materials are selected from the group consisting of aluminum, copper, and molybdenum (column 21, Table 1).

16. With respect to claim 40, Besson discloses the filter 150 is wheel-shaped and rotates.

17. With respect to claim 41, Besson discloses the positioner comprises a motor (156).

18. With respect to claims 43-45, Keitaro et al. disclose the first target material (1) forms a ring configuration; the first target material and the second target material (2) are positioned concentrically relative to each other; and the first target material and the second target material are positioned relative to each other in a side-by-side configuration.

19. With respect to claim 46, Besson discloses an electron gun (Fig. 26, 2604) for sending electrons (2606) towards the first or the second target material (2608).

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20. With respect to claims 47-50, Besson discloses an electron deflector for changing a path of the electrons such that the electrons can be selectively aimed towards the first target material or the second target material; wherein the electron deflector comprises an electromagnetic field generator; wherein the electron deflector comprises a magnetic field generator; wherein the electron deflector physically deflects the electrons (column 45, lines 55+).

21. With respect to claim 51, Besson discloses a gantry to which the structure is secured (column 3, lines 53-54).

22. With respect to claims 52 and 53, Besson discloses the structure is part of a MRI (column 60, line 6) or PET machine (column 59, lines 61-62).

23. With respect to claim 54, Besson discloses the first x-ray filtering material comprises a k-edge filter (column 21, lines 16-20).

24. With respect to claim 55, Besson discloses the first x-ray filtering material has a x-ray transmission window that is above a k-edge, and the second x-ray filtering material has a x-ray transmission window that is below the k-edge (column 32, lines 25-27).

25. With respect to claims 59, 64, 66, and 67, Keitaro et al. disclose the first target material (1) has at least an arc or a partial circular shape; wherein the arc or partial circular shape has a continuous configuration.

26. Claims 21-25, 27-34, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besson (USPN 6,950,493 B2) in view of Albert (USPN 4,048,496).

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27. With respect to claims 21 and 65, Besson discloses a method for generating image data, comprising: generating a first x-ray radiation using a target material; applying a first filter factor (Fig. 2 - 152) to the first x-ray radiation to obtain a first filtered radiation; generating a first set of image data in response to the first filtered radiation; generating a second x-ray radiation using a target material; applying a second filter factor (154) to the second x-ray radiation to obtain a second filtered radiation; and generating a second set of image data in response to the second filtered radiation; wherein the first and the second filter factor is applied automatically using a machine (control unit - 110 controls motor - 156).

While Besson teaches a dual target configuration (column 21, lines 52-57), Besson does not specifically disclose a first target material and a second target material to produce the first and second x-ray radiation with the corresponding first and second filter factors. Albert discloses a first target material corresponds with a first portion of a radiation filter, and a second target material corresponds with a second portion of the radiation filter (column 7, lines 56-68 & column 8, lines 59-64). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Besson to employ a first target material corresponding with the first filter factor, and a second target material corresponding with the second filter factor, to provide an X-ray source providing for selection of any of a plurality of different wavelength spectra to enhance imaging, as taught by Albert (column 2, lines 30-46).

Besson does not disclose the first target material forms a first ring, the second target material forms a second ring, the first x-ray radiation is generated by aiming

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electrons towards the first ring, and the second x-ray radiation is generated by deflecting the electrons such that they are aimed towards the second ring. Albert discloses the first target material forms a first ring (the outer ring of targets - 54), the second target material forms a second ring (the inner ring of targets - 56), the first x-ray radiation is generated by aiming electrons towards the first ring, and the second x-ray radiation is generated by deflecting the electrons such that they are aimed towards the second ring (via deflection control - 28). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Besson to have the first target material form a first ring, the second target material form a second ring, the first x-ray radiation is generated by aiming electrons towards the first ring, and the second x-ray radiation is generated by deflecting the electrons such that they are aimed towards the second ring, because this is a rapid and efficient way to conduct analysis, as taught by Albert.

Albert does not specifically disclose the first target material having at least an arc shape or a partial circular shape, wherein the arc shape or partial circular shape has a continuous configuration. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first target material of Albert to have at least an arc shape or a partial circular shape, wherein the arc shape or partial circular shape has a continuous configuration, as a matter of design choice, since such a modification would have involved a mere change in the shape of the target. A change in shape is generally recognized as being within the level of ordinary skill in the art.

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28. With respect to claims 22 and 23, Besson discloses the first filter factor is applied by placing a first filter into the X-ray radiation, and the second filter factor is applied by placing a second filter into the X-ray radiation (column 9, lines 45-60).

29. With respect to claim 24, Besson discloses the first filter factor has a same filtering characteristic as the second filter factor (column 9, lines 45-60).

30. With respect to claim 25, Besson discloses the first filter factor is different from the second filter factor (column 9, lines 45-60).

31. With respect to claim 27, Besson as modified by Albert discloses the first filter factor and the second filter factor are applied by placing a first filter and a second filter, respectively, into the first and second X-ray radiation (Albert – column 7, lines 56-68 & column 8, lines 59-64).

32. With respect to claim 28, Besson discloses the first filter (Fig. 2, 152) and the second filter (154) are secured to a rotatable structure (filter 150 is wheel-shaped and rotates).

33. With respect to claims 29-33, Besson as modified by Albert discloses the first set and the second set of image data are generated using an imager; collecting the first set and the second set of image data from the imager; wherein the collection of the first and the second sets of image data is synchronized with positions of the first and the second filters; wherein the first set of image data is generated using a first imager, and the second set of image data is generated using a second imager; and collecting the first set and the second set of image data from the first and the second imagers, respectively (Besson - column 4, lines 39-64).

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34. With respect to claim 34, Besson discloses either or both of the first and second filters comprise a material selected from the group consisting of aluminum, copper, and molybdenum (column 21, Table 1).

35. Claims 57, 58, 62, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besson (USPN 6,950,493 B2) in view of Keitaro et al. (JP 05-036368) as applied to claims 1 and 39 above, and further in view of Albert (USPN 4,048,496).

36. With respect to claims 57 and 62, Besson as modified by Keitaro et al. disclose the first target material forms a first ring (Keitaro et al. - 1), the second target material forms a second ring (2), wherein the first and second rings are rotatable relative to an electron source (4 & 5). Besson/Keitaro et al. do not disclose an electron deflector for selectively aiming electrons towards the first ring or the second ring. Albert discloses an electron deflector (28) for selectively aiming electrons towards the first ring (54) or the second ring (56). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Besson/Keitaro et al. to have an electron deflector for selectively aiming electrons towards the first ring or the second ring, because this is a rapid and efficient way to conduct analysis, as taught by Albert.

37. With respect to claim 58, Keitaro et al. disclose a positioner (the anode is disclosed to be a rotation anode) for rotating the first ring, wherein the positioner is configured to rotate the first ring while the electrons are aimed towards the first ring.

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38. With respect to claim 63, Keitaro et al. disclose a motor for rotating the first ring, wherein the motor is configured to rotate the first ring while the electrons are aimed towards the first ring (paragraphs 0001+).

39. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Besson (USPN 6,950,493 B2) in view of Albert (USPN 4,048,496) as applied to claim 21 above, and further in view of Keitaro et al. (JP 05-036368).

40. With respect to claim 60, Besson in view of Albert does not disclose rotating the first ring while the electrons are aimed towards the first ring; and rotating the second ring while the electrons are aimed towards the second ring. Keitaro et al. disclose this (paragraphs 0001+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Besson/Albert to rotate the first ring while the electrons are aimed towards the first ring, and rotate the second ring while the electrons are aimed towards the second ring, to prevent the targets from overheating.

Response to Arguments

41. Applicant's arguments filed 10/31/08 have been fully considered but they are not persuasive. Applicants argue:

There is nothing in Keitaro that discloses or suggests a first target material corresponds with a first radiation filter material, and a second target material corresponds with *a second radiation filter material that is different from the first radiation filter material*.

The Examiner respectfully disagrees. Keitaro et al. teach a first target material (1) corresponds with a first radiation filter, and a second target material (2) corresponds

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with a second radiation filter (abstract & paragraphs 0001-0009). It is also obvious that the filters of Keitaro et al. are different, because these correspond to each cathode and the material of the focus surfaces (abstract), and Keitero et al. are concerned with being able to produce different x-ray quality within the same device. The different x-ray quality are produced by the different filters and material of the focus surfaces used.

Applicants also argue:

In particular, claim 21 has been amended to recite that the first *target material has at least an arc shape* or a partial circular shape. According to page 11 of the Office Action, Albert allegedly discloses the above limitation. However, Applicant respectfully notes that the target material (54) - i.e., the material itself, of Albert actually has a square shape, and not an arc or partial circular shape as described in the claim (see figure 1 of Albert). For at least the foregoing reason, claim 21 and its dependent claims are believed allowable over the cited references and their combination.

The Examiner respectfully disagrees. Albert does not disclose the target shape.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first target material of Albert to have at least an arc shape or a partial circular shape, wherein the arc shape or partial circular shape has a continuous configuration, as a matter of design choice, since such a modification would have involved a mere change in the shape of the target. A change in shape is generally recognized as being within the level of ordinary skill in the art.

Conclusion

42. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JURIE YUN whose telephone number is (571)272-2497. The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jurie Yun/
Primary Examiner, Art Unit 2882

December 18, 2008